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# Computer News

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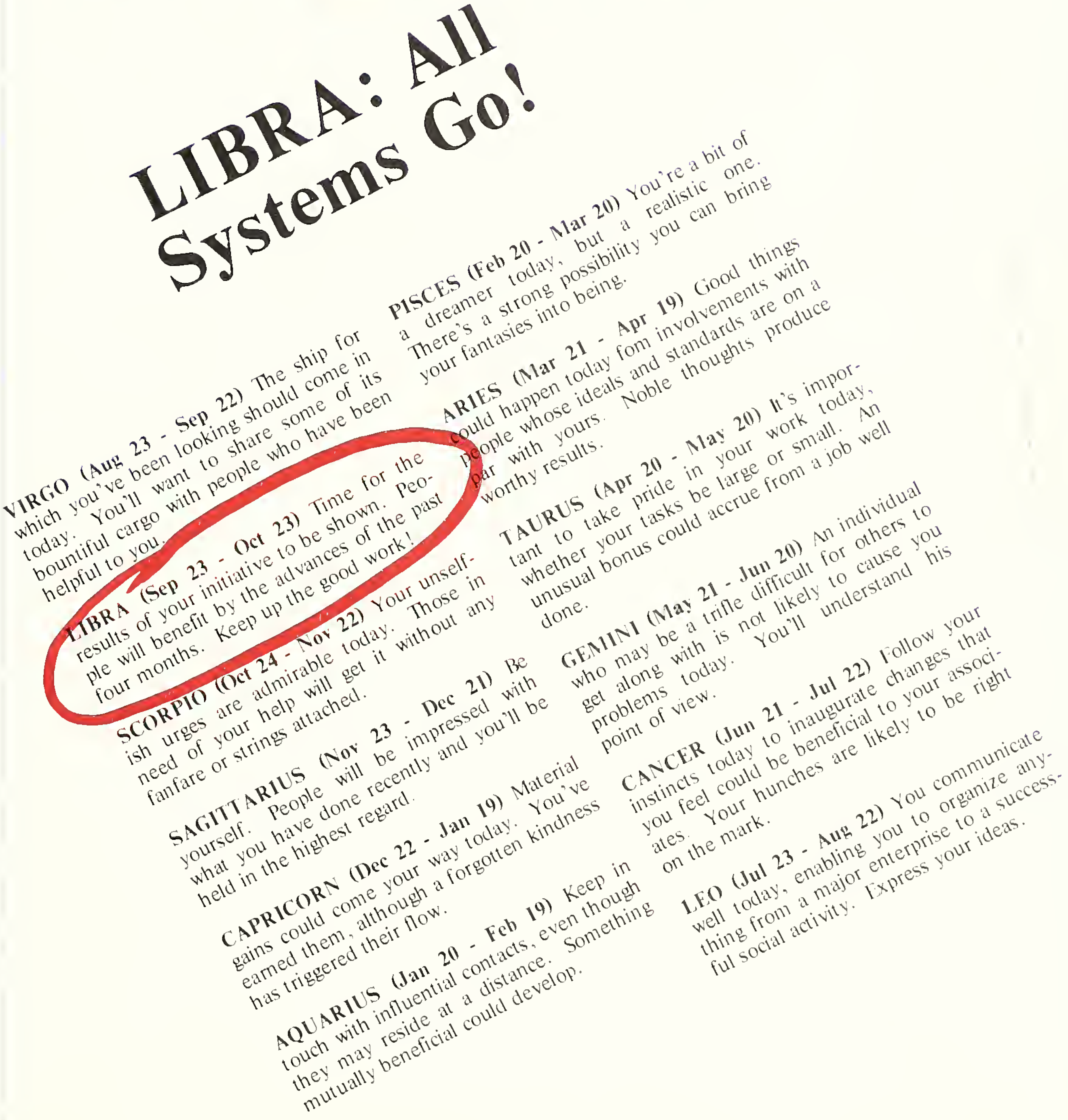

## LIBRA: All Systems Go!

**VIRGO (Aug 23 - Sep 22)** The ship for which you've been looking should come in today. You'll want to share some of its bountiful cargo with people who have been helpful to you.

**LIBRA (Sep 23 - Oct 23)** Time for the results of your initiative to be shown. People will benefit by the advances of the past four months. Keep up the good work!

**SCORPIO (Oct 24 - Nov 22)** Your unselfish urges are admirable today. Those in need of your help will get it without any fanfare or strings attached.

**SAGITTARIUS (Nov 23 - Dec 21)** Be yourself. People will be impressed with what you have done recently and you'll be held in the highest regard.

**CAPRICORN (Dec 22 - Jan 19)** Material gains could come your way today. You've earned them, although a forgotten kindness has triggered their flow.

**AQUARIUS (Jan 20 - Feb 19)** Keep in touch with influential contacts, even though they may reside at a distance. Something mutually beneficial could develop.

**PISCES (Feb 20 - Mar 20)** You're a bit of a dreamer today, but a realistic one. There's a strong possibility you can bring your fantasies into being.

**ARIES (Mar 21 - Apr 19)** Good things could happen today fom involvements with people whose ideals and standards are on a par with yours. Noble thoughts produce worthy results.

**TAURUS (Apr 20 - May 20)** It's important to take pride in your work today, whether your tasks be large or small. An unusual bonus could accrue from a job well done.

**GEMINI (May 21 - Jun 20)** An individual who may be a trifle difficult for others to get along with is not likely to cause you problems today. You'll understand his point of view.

**CANCER (Jun 21 - Jul 22)** Follow your instincts today to inaugurate changes that you feel could be beneficial to your associates. Your hunches are likely to be right on the mark.

**LEO (Jul 23 - Aug 22)** You communicate well today, enabling you to organize anything from a major enterprise to a successful social activity. Express your ideas.

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# COMPUTERNEWS

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**Editor**

David Reed

**Subscriptions**

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**Cover**

What's in the Stars? Turn to page 3.

**Contents**

LIBRA 3
10 Years Ago This Month 4
New Release of UTCS Sharp APL 5
APL Users Group Meeting 6
UTCS Change Committee 6
Calcomp 1051 Installation 7
SYS3.PROCLIB 7
Letters to The Editor 8
User Exchange Column 8
Personnel Changes 8
New Titles in the DCS Library 9
Systems
Directory

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# LIBRA STUDENT SERVICES

In the May/June issue of *COMPUTERNEWS,* we outlined UTCS' proposal to improve support for instructional services. In co-operation with a steering committee appointed by the Vice President (Research and Planning) we have installed LIBRA.

The High Speed Job Stream (HSJS) at the University of Toronto comprises most of the student instructional workload. Both a shortage of access points and an out-dated access method (keypunches and card readers) have strained the usefulness of this service.

The Presidential Advisory Committee on Computing Facilities and Services approved the improvement of HSJS to be carried out in phases, and advised the administration to proceed only with the first phase. This included the installation of 60 terminals to provide student job preparation facilities. It was also recommended that no changes be made to our existing keypunch terminal areas until this phase was operational and proven.

Additional phases of these improvements include the installation of LIBRA facilities at Scarborough and Erindale in January, and replacements of St. George Keypunches by LIBRA terminals next fall. A possible future development for this service would allow students to retrieve output at their terminals or execute their programs interactively.

LIBRA (as the new service is called) has become operational. However, the proposed 60 terminals have been pared down to 10, due to problems acquiring a larger site in time for fall classes. These 10 terminals are being used, for the most part, by CSC149 students in room 1071 of the Sidney Smith building. An IBM 1403 line printer has been installed in the same room, as well as in numerous study areas for debugging purposes.

In the initial two weeks of LIBRA operation, the response has been enthusiastic. The system itself is forms driven, allowing logical flow to and from the full screen editor. Each terminal has, in effect, become a "glass keypunch". Since the larger site in Robarts Library will not be ready until early next term, the LIBRA project team is taking this opportunity to smooth out any rough edges in the LIBRA program itself, and to update and modify the documentation package that each student received.

The following paragraphs outline the appearance of LIBRA to students.

When a student signs onto LIBRA for the first time, he is asked for his first and last name so that LIBRA can identify his output.

Once the user has entered his name, he is invited to edit the file called "SAMPLE1" - a trivial program that reads and prints a number. However, this program has an error in it so the file must be edited to correct the problem.

When the student leaves the editor, LIBRA offers a default action of "SUBMIT". If submitting the job is the desired action, he need only press one key on the terminal, the job will be submitted, and the session terminated. The student then proceeds to the line printer to receive his output.

There is more to LIBRA than editing and submitting files. Users may change their password, examine file names in their directory, print the contents of files, restore the previous version of a file and much more. Anyone interested in seeing the LIBRA system in action is invited to drop by room 1071 of Sid Smith to watch the future HSJS access scheme today.

*David Reed*

# 10 YEARS AGO THIS MONTH

This month's *COMPUTERNEWS* brings a new column to readers: "n Years Ago this Month ....," where n is a number between 1 and 10.

What you will read below is a reprinted article from the past, exactly as it appeared then.

Let's start with ....

## SYSTEM/370 IS COMING

Yes, it's true! A SYSTEM/370 Model 165 is definitely scheduled to arrive at the Computer Centre in December 1971.

In continuing to expand and improve service to the user community, the Computer Centre has ordered a larger and faster computer, namely a SYSTEM/370 Model 165. The new computer will have 2048K bytes of high-speed core and an internal performance of two to five times that of the SYSTEM/360 Model 65. The additional core will enable the execution of more jobs concurrently and this, together with its faster internal speed, will significantly improve turnaround.

The Model 165 is designed as a successor to SYSTEM/360 Model 65 and as such will support existing software in use at UTCC; i.e., OS/MVT, HASP and all programs written for the SYSTEM/360 with the following exceptions:

1. time-dependent programs,
2. programs that use the ASCII mode bit in the PSW, and
3. programs deliberately written to cause certain program checks.

The new computer will also support existing input/output equipment (card readers, card punches and printers), storage devices (tapes and disks) and the six remote terminals presently attached to one of the SYSTEM/360s. Converting to the new SYSTEM/370 Model 165, therefore, ought to cause little if any difficulty to most of our users.

However, the arrival of the new computer will be accompanied by other changes at the Computer Centre, primarily in the reconfiguration of existing equipment. The two existing SYSTEM/360 computers, commonly referred to as System #1 and System #2, currently support two specific programming areas. These are (1) the General Purpose Job Stream (HASP) and the High Speed Job Stream services and (2) the Interactive Systems service (i.e., CPS, CPS/RJE, ATS and APL). The new configurations will provide for:

1. the new SYSTEM/370 Model 165 to be located in Room 106/111 Sandford Fleming Laboratories and to service the General Purpose and the High Speed Job Streams;
2. the removal of one of the SYSTEM/360 Model 65s;
3. the remaining SYSTEM/360 computer to be moved to the McLennan Physical Laboratories and to provide the Interactive Systems services.

This project is being planned very carefully to produce a minimum of disruption. The schedule now looks like this:

- move S/360 #1 to McLennan Physical Laboratories on the weekend of Nov. 20-21. Downtime starts at 5:00 p.m. Friday, Nov. 19;
- temporarily move input/output facilities for S/360 #2 into Room 111, Sandford Fleming (weekend of November 20-21);
- bring up S/360 #1 in time-sharing mode early in the week starting Monday, November 22nd;
- move input/output facilities again onto new raised floors in Rooms 107/108 Sandford Fleming on the the weekend of December 4 and 5;

continued...

**10 YEARS AGO** continued

- S/370 arrives December 15th, locating into Room 111, Sandford Fleming;
- S/360 #2 ceases service at 5:00 p.m. Wednesday, December 22nd;
- move I/O facilities yet again into their new 'permanent' location in Room 106;
- S/370 assembly testing by IBM concludes on December 28;
- S/370 acceptance testing by UTCC starts on December 29;
- expect S/370 in full production on January 3, 1972.

Please watch for further publications regarding any changes in standards or techniques affecting users.

*Janet Marsh*

## NEW RELEASE OF UTCS SHARP APL

In the July/August issue of *COMPUTERNEWS* UTCS announced the installation of a new release of SHARP APL. We expect to complete this installation by November.

Many extensions and improvements have been made to APL in this release. Complex numbers become available and a new data type ENCLOSED is introduced. In addition, powerful extensions have been made to several of the existing functions and operators. This article presents only the highlights of these modifications. A more detailed and complete list may be accessed using the public library workspace: 1 NEWRELEASE.

### Complex Numbers

Complex numbers will be available in UTCS SHARP APL for the first time. Where appropriate, most of the primitive functions have been extended to accept arrays containing complex numbers as arguments and to give complex results. Users intending to use complex numbers should read the *Sharp APL Technical Note* number 40, available through the Information Office (978-4990).

### Enclosed Arrays

In APL, any data object other then a package is an array. An APL array may have any number of axes and each axis may be of any length. Each element within an array must be a scalar and all elements must be of the same type. Until now there have been only two data types possible: Character and Numerical. In this release a new data type ENCLOSED is being introduced.

Any array of any size or type may be enclosed as a scalar of type enclosed. Thus, arrays of different types and shapes may be be enclosed and stored in a single array of the type ENCLOSED. Three new functions and three new operators have been introduced to support this new data type. Users interested in using Enclosed arrays should read the *Sharp APL Technical Note* number 41 available through the Information Office.

### Extensions Made to Five APL Functions

The logical functions AND and OR will be extended to become the Least Common Multiple and the Greatest Common Divisor functions respectively. The functions Upgrade and Downgrade have also been extended to become more powerful tools for sorting data. The Compression function has been enlarged as well to become the Replication function.

### N- And B-Tasks

B-Tasks will become available with this release of SHARP APL. In addition, an old bug which previously prevented Projacted accounts from running N-Tasks has been fixed, so that all APL SACs will be able to run both N- and B-Tasks.

### Possible Side Effects

A few of the changes in this release may in-

continued...

**SHARP APL** continued

cur side effects which are discussed in the workspace 1 NEW RELEASE document. Problematic side effects may result from the following changes in particular: the changes to the line counter and in the branching rules and the extension to exponentiation required to support complex numbers. If you anticipate any problems with this new release, or if problems should arise after the installation, please call Mary Ann Lawry at 978-6878.

*Mary Ann Lawry*

## APL USERS GROUP MEETING

A meeting of the APL Users Group will be held in Room 3163, Medical Sciences Building at 4 p.m. on Thursday, October 15, 1981.

*Len Fertuck*

## UTCS CHANGE COMMITTEE

Summertime is invariably busy for UTCS since the most appropriate time to carry out major alterations to our services is between academic years. The absence of new change requests at the September 10 meeting indicates that this flurry of summer activity is easing off.

However, some interesting change requests have been submitted over the past month.

Contract negotiations are under way between UTCS and the Intel Corporation for a 'solid-state disk.' This very fast memory unit is considered an effective and economical alternative to the addition of 4 megabytes of memory to the 3033N8. If this device is obtained it will be used for swapping space and a considerable improvement in performance is anticipated.

We should soon receive delivery of the IBM SERIES/1 mini-computer which UTCS will use as an ASCII 3278 emulator/controller. This will enable ASCII terminals with cursor-addressing capabilities (which are generally much cheaper than 3278 type terminals) to appear as 3278s to the IBM 3033. A SERIES/1 system of this type has been successfully implemented at Yale.

MVS/SP Release 1.1 is to be installed on the Academic system. This should be carried out some time in October. MVS/SP is considered more reliable than our current MVS release and users will note an improvement in performance and response time.

Pending a decision on its future, the UTLAS 9700 laser printing service will remain in an extended test period. See the April 1981 issue of *COMPUTERNEWS* for a description of this experimental service.

The new VAX/750 UNIX facility has suffered some delays due to delivery problems. At the time of writing, UTCS is still awaiting delivery on the three printers.

*Terry Farley*

## CALCOMP 1051 INSTALLATION

The UTCS Change Committee has approved a free user trial period of one week for the Calcomp 1051 plotter. A tentative schedule puts the free trial week on or about October 19th. Please watch HOTNEWS and Broadcast messages for the exact dates.

The installation of the plotter is progressing satisfactorily. All software problems have been resolved by Calcomp's software specialist. The hardware setup is completed and the Systems group is working on the System Writer which will drive the plotter online and record accounting information. There will be records for (1) time on the plotter, (2) length of plot and (3) types of paper and pen used. The exact charging algorithm is still to be determined.

The UTCS software interface for user programs is being developed and tested by the Applications Support group. Basic FORTRAN subroutines supported for the Calcomp 1051 will look the same as the current UTCS Calcomp calls. One noticeable addition is the NEWPEN subroutine, for selecting one of the four pens. Existing user source programs should continue to work with the default of pen 1. However, the changeover from offline to online operation will necessitate changes in JCL.

Documentation and information for the new plotter trial will be available from CSRs about a week in advance of the free test week.

*Kin Fong*

## SYS3.PROCLIB

SYS3.PROCLIB is a public library of catalogued JCL procedures. The storage cost for the library is paid by UTCS and is thus free to users. Any user of the University of Toronto's computer system has access to this library; moreover, any user can add, delete, modify or replace its members.

If you have a JCL procedure that could be useful to other users, you can convert your JCL into a catalogued procedure and place it in SYS3.PROCLIB. A 'Job Control Utility' procedure called 'ADDPROC' performs this task. A description of 'ADDPROC' and instructions on its use are found in UTCS' USERBOOK Section 3.4 Utilities. Please note that your JCL *must* be in the form of a catalogued procedure to be placed in SYS3.PROCLIB.

One or more procedures can easily be deleted with a 'job control utility' entitled DELPROC. However, once deleted from SYS3.PROCLIB, a procedure is gone forever. You may therefore wish to copy the procedure to one of your own libraries before deletion from SYS3.PROCLIB.

When making use of 'ADDPROC', note that your procedure will specify a retention period. When this period of time has elapsed you have hit the expiry date of the procedure and it will automatically be deleted by the system. If the procedure is important, the same precautionary action should be taken as with 'DELPROC': keep a copy for your own records.

The retention period of the procedure may be extended after it has been created. For example, let us say that your procedure expires on April 1st and it is now March 31st. You may use the utility 'EXTPROC' to extend the retention period of the procedure for up to 360 days as of the day you run 'EXTPROC'.

As with 'ADDPROC', documentation for

continued...

**SYS3.PROCLIB** continued

'DELPROC' and 'EXTPROC' can be found in USERBOOK Section 3.4 Utilities along with other Utilities you may find useful when working with SYS3.PROCLIB.

If you have difficulities with the above utilities, do not hesitate to contact the timesharing advisors at 978-6465 or your CSR.

*Steve Younker*

## LETTERS TO THE EDITOR

Commencing next month *COMPUTERNEWS* will feature a "Letters to the Editor" column. We hope to provide readers with a regularly appearing forum for both their suggestions and complaints about any aspect of computer usage within UTCS.

We invite you to submit your letter to:

The Editor,
*COMPUTERNEWS,*
Room 206,
Engineering Annex

## USER EXCHANGE COLUMN

Continuing next month, *COMPUTERNEWS* will feature a monthly exchange column for our user community. This column will allow users who wish to acquire or dispose of software or hardware to place a small notice in *COMPUTERNEWS* notifying other users at U of T.

This feature is intended to provide users with a forum for exhange of computer material. As such, no commercial advertising will be accepted. Users with a terminal they would like to sell, a program they would like to acquire, a meeting they would like to announce, etc. should mail their request to:

User Exchange Column
*COMPUTERNEWS*
Room 206
Engineering Annex

UTCS reserves the right to select appropriate items only.

## PERSONNEL CHANGES

**Pat Smith,** the Assistant Editor, has left to live and work in New York. She has been with UTCS' Information Services for 1 1/2 years. Pat was very active in compiling *COMPUTERNEWS.*

Formerly an EAT operator, **Andrew Mountain** has now been promoted to Interactive Facility Co-ordinator for UNIX Student Services.

**Steve Younker,** previously working with Programming Services, is now with the Applications Group.

**Geoff Collyer** has joined the Systems Group and is involved in the support of UNIX. Before working at UTCS, Geoff worked at the Vancouver Stock Exchange.

**Charles Painter,** previously a Waterloo co-op student, spent several work terms at UTCS, and is now working full-time for the Systems Group.

**Joe Lim** has also joined UTCS in Field Services for CSS.

*Kathryn Bourne*

# RECENT ACQUISITIONS IN THE DCS LIBRARY

Copenhagen Winter School on Abstract Software Specifications, 1979.
Abstract software specifications, ed. by D. Bjorner.
Berlin, Springer-Verlag, 1980.

Eliason, Alan L. and Kitts, K.D.
Business computer systems and applications. 2d ed.
Chicago, Science Research Assoc., 1979.

Estes, James W. and Ellis, B.R.
Elements of computer science.
San Francisco, Canfield Press, 1973.

Fletcher, Roger.
Practical methods of optimication, v.1: unconstrained optimization.
Chichester, Eng., Wiley, 1980.

Hartmanis, Juris.
Feasible computations and provable complexity properties.
Philadelphia, S.I.A.M., 1978.

Hughes, Charles E. et al.
Advanced programming techniques: a second course in programming using FORTRAN.
New York, Wiley, 1978.

Morris, Derrick and Ibbett, R.N.
The MU5 computer system.
New York, Springer-Verlag, 1979.

Pollack, Seymour V. and Sterling, T.D.
A guide to PL/1. 2d ed.
New York, Holt, Rinehart and Winston, 1976.

Rice, John Rischard.
Matrix computations and mathematical software.
New York, McGraw-Hill, 1981.

Roberts, Fred S.
Graph theory and its applications to problems in society.
Philadelphia, S.I.A.M., 1978.

Solomon, Herbert.
Geometric probability.
Philadelphia, S.I.A.M., 1978.

Welsh, Jim and Elder, J.
Introduction to PASCAL.
London, Prentice-Hall International, 1979.

Working Conference on Operating Systems Engineering, IBM Amagi Homestead, Japan Oct. 1980.
Proceedngs.
Tokyo, IBM Japan, 1980.

# UTCS SYSTEMS

## 3033/N8 PROCESSOR

- located in McLennan Physical Laboratories
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR, APL and ATMS services
- 8 megabytes of memory
- MVS with JES2

## 4341 PROCESSOR

- located in McLennan Physical Laboratories
- provides administrative IMS/VS DB/DC, Batch and TSO
- 8 megabytes of memory
- MVS with JES2

## DECSYSTEM-10 Model 1090

- located in McLennan Physical Laboratories
- provides General Purpose Time-Sharing
- 256 K - 36 bit words of memory
- TOPS-10 operating system

## COMMUNICATIONS & SMALL SYSTEMS (CSS)

- located in Old Metro Library Bldg., room 244
- DEC PDP-11/40 with GT44 Graphics
- DEC PDP-11/05 with GT40 Graphics
- Various Z80-based microcomputers (S-100, CP/M)
- Radio Shack TRS-80
- Western Digital Pascal MicroEngine
- Apple II Plus
- provides specialized interactive graphics
- provides online and real-time computing services, data acquisition and conversion, and minicomputer services

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continued...

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**Key:**

EA = Engineering Annex
ML = Metro Library
MP = McLennan Physical Laboratories (New Physics)
SG = 49 St. George
SS = Sidney Smith

**Job and System Status Queries**

| | |
|---|---|
| SYSTEM/3033N8A / TSO, WYLBUR, BATCH, ATMS, APL | 7393 |
| DEC-1090 | 4318 |

| **Time-Sharing Services through PACX** | **Dial-Up** |
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